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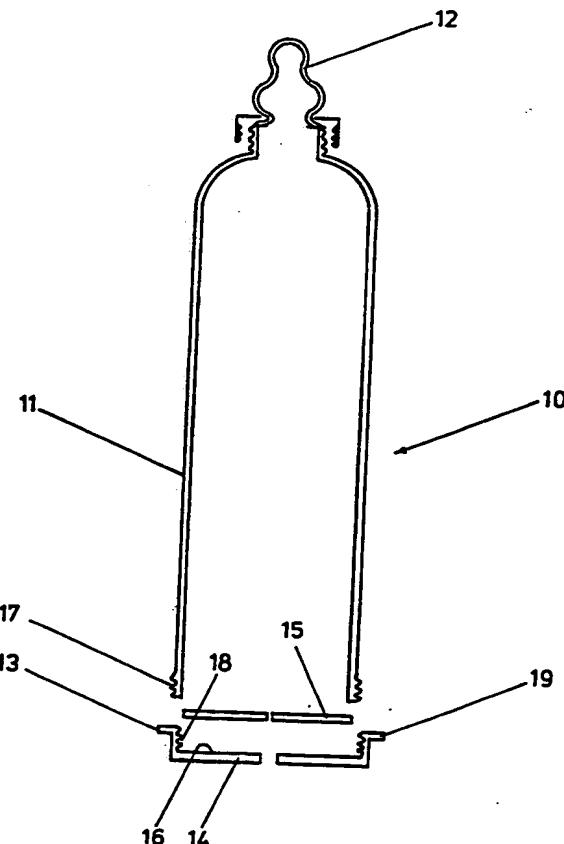
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(54) Title: A FEEDING BOTTLE

(57) Abstract

A feeding bottle (10) for a baby comprises an air inlet valve (13) at the end remote from the teat receiving end. The air inlet valve allows air to enter the bottle while the baby is feeding which makes it easier for the baby to feed.



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A Feeding Bottle

This invention relates to a feeding bottle, and particularly to a feeding bottle having a rigid body.

In known feeding bottles, a baby sucks milk or some other liquid through a teat. As the baby sucks a vacuum is formed in the bottle, and it becomes difficult for the baby to continue to suck. It is necessary therefore to interrupt the baby's feeding from time to time in order to allow the pressure in the bottle to return to atmospheric pressure, when it is again easier for the baby to feed.

A number of solutions to this problem have been proposed, all of which are complicated, involving several components, or complicated shapings of the components. As a result they have not been practicable, being expensive and difficult to manufacture.

According to the invention there is provided a feeding bottle of the type comprising a body adapted to receive a teat at a first end, and a second opposite end, an air inlet valve receivable in the second end comprising an outer rigid retaining member comprising an outer wall which defines an aperture within the wall, and adapted to receive and retain an inner substantially flat resiliently deformable valve sheet member having a slit formed therein, the retaining member and the sheet member being cooperable with each other such that when the pressure within the bottle is substantially equal to or greater than atmospheric pressure the slit remains closed, and the valve is fluid-tight, and when the pressure within the bottle is substantially less than atmospheric pressure, the slit opens to allow fluid to enter the bottle.

Thus the feeding bottle of the present invention provides a particularly simple way of allowing air into the bottle when the baby is feeding. This reduces problems such as wind and colic in the baby. The sheet member may comprise any resiliently deformable material, but

preferably it comprises rubber.

Preferably the retaining wall member may be fitted on the body of the bottle, by means of cooperating screw threads at the second open end of the body of the bottle, and the wall portion respectively.

Conveniently the bottle further comprises protection means fittable around the retaining member for protecting the retaining member from the external environment.

Preferably the protection means comprises a hollow cylinder which is slideably fittable around the wall portion.

Alternatively the protection means may comprise a raised edge extending from the outer edge of the air inlet valve.

The invention will now be described by way of example only with reference to the accompanying drawings in which:

Figure 1 is a schematic representation of a bottle according to the invention;

Figure 2 is a schematic representation of the wall portion of an air inlet valve according to the invention;

Figure 3 is a schematic representation of the valve sheet member of the air inlet valve; and

Figure 4 is a schematic representation of a protective sleeve for use with the bottle of figure 3.

Referring to Figure 1, a feeding bottle according to the invention is designated generally by the reference numeral 10. The bottle 10 which may be formed from glass, plastics or the like comprises a body 11 adapted to receive a teat 12 at one end and an air inlet valve 13 at the other end. The teat 12 is screw fitted to the bottle in a conventional manner.

The air inlet valve 13 is shown in more detail in figures 2 and 3. The valve 13 comprises a rigid retaining wall member 14 adapted to receive a resiliently deformable valve sheet member 15. In use, the valve sheet member 15 is positioned flush with the surface 16 of the retaining

member 14 and is retained therein. Sheet member 15 comprises a slit position d centrally having a length of approximately 4mm, and wall portion 14 has an aperture having a diameter of approximately 2mm. The retaining member 14 is in the form of a cap made of a plastics material which may be screw fitted onto the open end of the bottle via complementing screw threads 17,18.

When the bottle contains liquid, such as milk, and before the baby begins to feed, the air inlet valve provides a fluid tight valve. This is due to the slit being held in a closed position within the wall member 14. When the baby begins to feed, by sucking on the teat, the pressure within the bottle is reduced. This causes the sheet member 15 to be pulled into the bottle, away from the wall portion 15. This in turn causes the slit to open which allows air to enter the bottle via the aperture and the slit. The pressure in the bottle thus equalises with the outside pressure making it easier for the baby to feed.

The retaining member 14 is formed into edge portion 19 having a greater diameter than the main part of the retaining member 14. This allows a hollow cylindrical protective sleeve (fig 4) having an inner diameter which is substantially the same as the outer diameter of wall member 14, to be slid onto the member 16 until it abutts with edge 19. The sleeve has a length which is greater than the depth of member 14, and thus the bottle may be placed in an upright position, with the sleeve in place to avoid contact between the air inlet valve and the surroundings.

CLAIMS

1. A feeding bottle of the typ comprising: a body having a first end adapted to receive a teat, and a second opposite end; an air inlet valve receivable in the second end comprising an outer rigid retaining member comprising an outer wall which defines an aperture within the wall and an inner substantially flat resiliently deformable valve sheet member having a slit formed therein adapted to be received in the outer wall, the retaining member and the sheet member being co-operable with each other such that when the pressure within the bottle is substantially equal to or greater than atmospheric pressure the slit remains closed, and when the pressure within the bottle is substantially less than atmospheric pressure, the slit opens to allow fluid to enter the bottle.

2. A feeding bottle as claimed in claim 1 wherein the sheet member comprises rubber.

3. A feeding bottle as claimed in claim 1 or claim 2 wherein the retaining wall member is fittable to the body of the bottle by means of co-operating screw threads in the second open end of the body of the bottle and the wall portion respectively.

4. A feeding bottle as claimed in any one of the preceding claims further comprising protection means fittable around the retaining member for protecting the retaining member from the external environment.

5. A feeding bottle as claimed in claim 4 wherein the protection means comprises a hollow cylinder which is slideably fittable around the wall portion.

6. A feeding bottle as claimed in claim 4 wherein the protection means comprises a raised edge extending from the outer edge of the air inlet valve.

7. A feeding bottle substantially as hereinbefore described with referenc to the acc mpanying drawings.

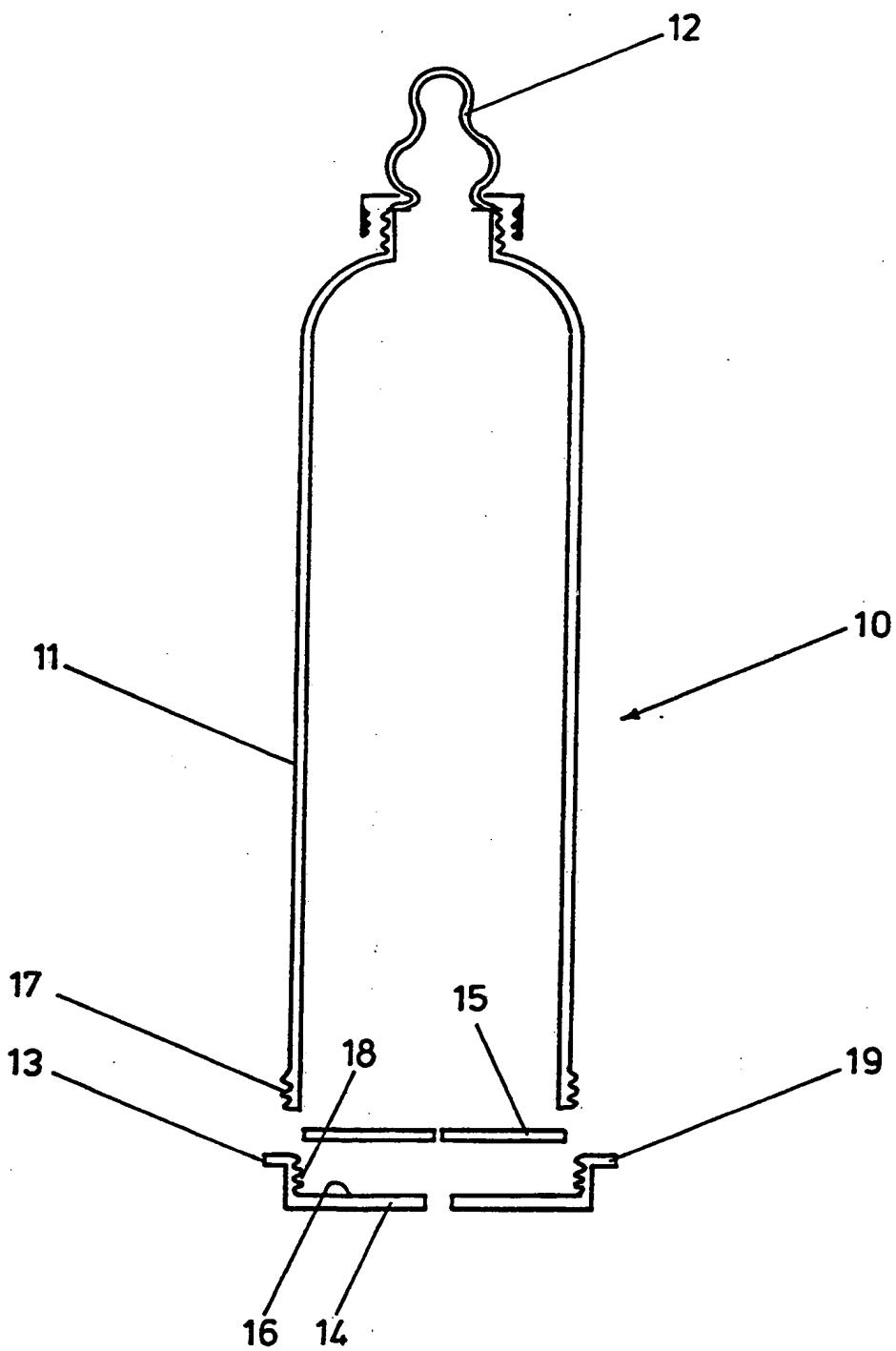


FIG. 1

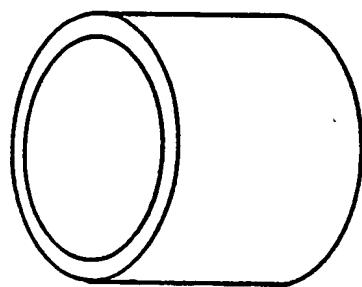


FIG. 4

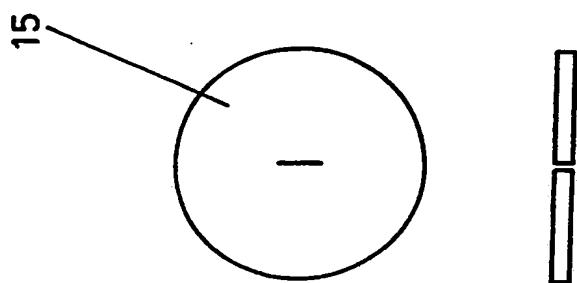


FIG. 3

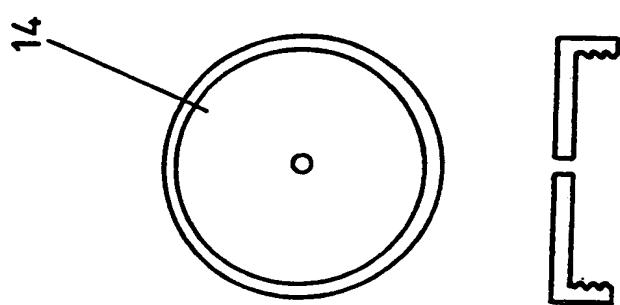


FIG. 2.

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/GB 91/00885

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all)⁶

According to International Patent Classification (IPC) or to both National Classification and IPC
 Int.C1. 5 A61J9/04

II. FIELDS SEARCHED

Minimum Documentation Searched⁷

Classification System	Classification Symbols
Int.C1. 5	A61J

Documentation Searched other than Minimum Documentation
 to the Extent that such Documents are Included in the Fields Searched⁸

III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹

Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	DE,C,501 878 (FICHTER ET AL.) 19 June 1930	1,2,4
Y	see page 1, line 16 - line 35; figure 1 ---	3,5,6
Y	US,A,3 134 495 (CARBONEL) 26 May 1964 see figure 1 ---	3,5,6
A	US,A,1 972 895 (MACCOY) 28 July 1933 ---	-
A	CH,A,544 547 (ANLIKER) 15 January 1974 ---	-
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IV. CERTIFICATION

Date of the Actual Completion of the International Search 1 27 JANUARY 1992	Date of Mailing of this International Search Report - 6. 02. 92
International Searching Authority EUR PEAN PATENT OFFICE	Signature of Authorized Officer GODOT T. 

**ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO. GB 9100885
SA 47980**

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The numbers are as contained in the European Patent Office EDP file on 27/01/92. The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE-C-501878		None	
US-A-3134495		None	
US-A-1972895		None	
CH-A-544547	15-01-74	None	
US-A-4685577	11-08-87	None	
DE-U-8704733	03-09-87	None	